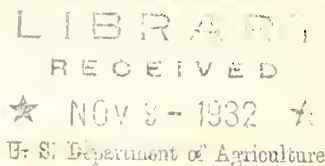


Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.7
-c u a k a
SOME RECENT RESULTS OF SOIL EROSION RESEARCH



A radio talk by H. H. Bennett, Bureau of Chemistry and Soils, delivered Monday, October 24, 1932, in the Department of Agriculture period, National Farm and Home Hour, broadcast by a network of 46 associate NBC radio stations.

--ooOoo--

Hello, Farm and Home Listeners:

This is my third talk with you about the results of our soil erosion research work. I have told you about the observations of myself and other soils men on the widespread and costly damage done to our lands by erosion--the menace that already has ruined 21 million acres of our land and reduced the productive power of many more millions of acres.

I have told you how in the past three years we have established 11 erosion experiment farms in 11 major soil and climatic regions where the acute erosion problem demands quick remedies.

We have learned much about the extent and nature and the possibilities of controlling erosion in these few years of experimental work. But we know there is vastly more to be learned. For example, take the results of the first experiments with terraces and cropping systems on terraced land.

Farmers in the southeastern United States have used terraces for nearly a hundred years. But only now are we getting precise engineering facts on the best methods of building terraces, the best methods of maintaining them, and the types of terraces that make for most efficient operation of farm machinery. Better terraces are coming into use as the result of these experiments.

Recently the experiment station at Spur, in West Texas, devised a practical system of terracing, whereby the runoff from a neighboring watershed can be distributed over lower-lying crop and pasture land. You can see that this system will make possible much more efficient use of water. For instance, in June this year, the Spur system of terracing concentrated the water from a rain of 1 and three-quarters inches, and spread it out gradually over a 120-acre field. Well, the result was that the water from this rainfall of 1 and three-quarters inches did that field as much good as the water from seven inches of rain ordinarily would. Naturally, the yields of feed crops on that field increased enormously. Naturally, too, the farmers around Spur already are beginning to use this new terracing system. They are not going to let a quarter or more of the rainfall flow away to the oceans while their crops are parching for lack of water.

Our experiments this year have again shown that strip-cropping is a very effective method of fighting erosion on various types of gently sloping land. I may explain again that strip-cropping means growing along the natural contours of the land thick, soil-saving crops like sorghum, clover, lespedeza, alfalfa, velvet beans and grass, in strips between cleantilled crops such as cotton, corn and

(over)

potatoes. Strip-cropping slows down erosion by water, and we are finding that it also offers a most promising means of controlling erosion by wind, such as does much damage in the Great Plains and other less humid parts of the country. In fact, strip-cropping is so practical, so cheap, and so easy to apply that we can say without reservation that it will find extensive use in many parts of the country.

In some western localities strip-subsoiling has helped farmers to keep erosion under control. And now, we have a hole-digging cultivator developed at the Hays, Kansas Erosion Station. This machine operates much like an ordinary cultivator, but it digs thousands of holes to the acre, and these holes catch and retain more than 50,000 gallons of rainwater to the acre. Last year experimental plots in Kansas treated with this cultivator suffered no appreciable erosion losses from rains which normally would have done much damage. This new method of cultivation also is giving good results in the great Palouse Wheat Belt of Washington, Idaho and Oregon. It seems to be a very promising practice for a large part of the country, especially in those regions where summer fallow and fall plowing are extensively practiced.

The results at the erosion experiment stations have confirmed the soundness of old ideas on crop rotation and using winter and summer cover crops. We know that thick-growing vegetation comes nearer to complete erosion control than any other implement that nature employs. Last year in Western Kansas we found that native sod held back 236 times more rain water and 8 thousand times more soil than clean-tilled Kafir corn grown immediately alongside. In the erosion experiments near Temple, Texas, there has been no runoff from Bermuda grass sod for two years. Also, there has been no appreciable erosion from strip-cropped areas at that station for a period of 20 months; and there has been practically none this year at the Red Plains station, in Oklahoma.

We have found that vegetation effectively controls erosion, not only because it offers obstruction to running water, but because it keeps the pore spaces of the ground open, and supplies absorptive, sponge-like humus. Take the simple matter of manuring. At the Missouri Valley erosion station between Clarinda and Shenandoah, Iowa, two rains in August this year washed 11 and one-half tons of soil per acre from unmanured land, as against only 4 and one-half tons per acre from land to which 8 tons of manure had been added.

Well, I have not time to pass on to you details on methods of controlling gullies with grass dams, brush dams, black locust, willow, and honeysuckle. If you are interested, write to the nearest erosion station. As rapidly as possible we shall give you helpful information coming from the experiments at these 11 soil erosion experiment stations. We hope that these results will be used widely. Already this nation has too much subsoil farming. This is a degrading type of farming. The man forced to farm subsoil exposed by erosion has little chance for making a satisfactory living, whether prices are up or down.

We must stop cultivating unmanageable steep slopes. We must plant these slopes to trees or grass, or not plant them at all. Beyond this, we must increase our practice of soil and water conserving methods on the erosive slopes that we do plow.

Let me urge that you let us have any suggestions that you have tried out and found promising in control of erosion. We propose to try at the earliest possible moment every promising practical method for slowing down the progress of erosion, which is so rapidly cutting into our most indispensable national asset, our agricultural lands. Now is a good time to inaugurate better systems of soil management, using our smoother lands for cultivated crops, and giving these lands the best protection possible. Much of this can be done at little or no extra cost, aside from the time spent on the job.

1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718